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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/253,250	02/19/1999	MICHAEL E. BASKEY	PO9-99-014	5382

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FLOYD A. GONZALEZ
INTELLECTUAL PROPERTY LAW
2455 SOUTH ROAD, P386
POUGHKEEPSIE, NY 12601

EXAMINER

TODD, GREGORY G

ART UNIT	PAPER NUMBER
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2157

DATE MAILED: 06/16/2004

21

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/253,250

Applicant(s)

BASKEY ET AL.

Examiner

Gregory G Todd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This is a fifth office action in response to applicant's amendment and request for continued examination filed, 24 March 2004, of application filed, with the above serial number, on 19 February 1999 in which claims 1 and 14 have been amended. Claims 1-22 are therefore pending in the application.

Specification

2. The amendment filed 27 September 2003, and subsequent amendment filed 24 March 2004, is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The main storage containing a plurality of host images. The examiner has reviewed the portions of the specification applicant relies on, including the *original* claim 1, as disclosing the main storage containing a plurality of host images, each host image for including an application server, and has not found evidence to support the new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

Applicant has attempted to amend the specification to overcome this objection, see page 3, however, the main storage containing a plurality of host images, as amended 27 September 2003 is still new matter. Applicant has referenced page 33, lines 1-2 as containing multiple host images, which examiner agrees with, however,

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examiner's position still stands of there not being the *main storage containing* a plurality of host images.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the more than one application server between images provided for virtual systems in said main storage must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claims 1 and 14 line 5 disclose "a main storage...with more than one application server between images provided for virtual systems in said main storage." However, this limitation is vague and it is not understood how the main storage with more than one application server between images provided

for virtual systems in the main storage is structured (ie. the wording appears to be an incomplete sentence) and is thus indefinite.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-2, 4, 6, 10-13, 14-15, 17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldarale et al (hereinafter "Caldarale", 5,659,794) in view of Provino et al (hereinafter "Provino", 5,778,384).

8. As per Claim 1, Caldarale discloses an apparatus for providing direct processing access between application servers and application users wherein Caldarale discloses:

a main storage capable of establishing processing communication with more than one application server (feature of Fig. 1 (24); at least col. 6, lines 21-27, 9-12);

said main storage containing a queuing mechanism for retrieval and storage of incoming and outgoing data without causing interrupts in any running programs, said queuing mechanism establishing queues for said main storage, said queues for retrieving data from and sending data to said application servers (feature of Fig. 2 (59 & 60)) (at least col. 8, lines 15-16, 25-27);

an interface element capable of establishing processing communication between said queuing mechanism and at least one application user (NIOP) (feature of Fig. 1 (10 & 46 & 16));

an interrogator (network I/O microcode controlling queue bank) operating independent of any application server for examining multiple queues in said queuing mechanism to transfer appropriate requests, responses and data between application servers and application user(s) (at least col. 7, line 44 - col. 8, line 25).

Caldarale fails to explicitly disclose each application server between images provided for virtual systems in said main storage, and thus the queues for the images. However, the use and advantages for using such a virtual imaging system is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Provino (at least col. 7, lines 36-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Provino's having virtual servers into Caldarale's system as this would enhance Caldarale's system to be able to have different queues for the same server due to the virtual designation and thus allowing more flexibility for Caldarale's system to have different queues in instances where more than one application is operating on a single server.

9. As per Claim 2.

- interface element further comprises of a connector interface element (channel/peripheral interfaces) (at least col. 6, lines 39-41)) and a network interface element (network interface) (features of Fig. 1 (10 26)).

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10. As per Claim 4.

- connector interface element comprises a plurality of processors (at least one NIOP / multiple NIOPs) (at least col. 6, lines 32-46).

11. As per Claim 6.

- main storage can be in processing communication with a plurality of network elements and servers (at least col. 6, lines 21-27, 9-12; Fig. 1).

12. As per Claim 10.

- network interface element further comprises an I/O device adapter (NIOP contains...Channel/Network I/O microcode...Channel microcode utilizes CA...multiple adapters in NIOP, network channels) (at least col. 7, lines 13-19, 40-41), at least one more processor (network interface controller) (at least col. 7, lines 42-46) and a local storage area (NIOP message buffers made up of queue banks) (at least col. 7 line 63 - col. 8 line 2).

13. As per Claim 11.

- Network Interface Element is capable of connecting to one or more individual application users (feature of Fig. 1).

14. As per Claim 12.

- Interface Element (NIOP) performs computing network environment functions establishing network communications between said application servers and said application user(s) (at least col. 7, lines 50-57).

15. As per Claim 13.

- Interface Element (NIOP) performs control unit (I/O device controlling) functions (buffering and queuing) (at least col. 7, lines 50-57).

16. As per Claim 14, Caldarale discloses an apparatus for providing direct processing access between a main storage, capable of connecting to more than one application server and an interface element with at least one adapter capable of establishing processing communication with at least one application user(s), and adapter wherein Caldarale discloses:

data receivers set up in each of the application servers for processing data (servers implicitly process received data) (at least col. 6, lines 20-31);

a queuing mechanism establishing a plurality of queues in main storage for providing continuous running of programs without interruptions, said queues for retrieval and storage of incoming and outgoing data (feature of Fig. 2);

an updatator for changing the status of network computing system every time new data is received, deleted or modified (at least col. 3, lines 55-65; col. 9, lines 29-31);

an interrogator operating independent of any application server for interrogating multiple existing queues in main storage simultaneously to process any received data or requests such that data or requests may be received from more than one application server (at least col. 7, line 44 - col. 8, line 25);

a determinator for interrogation and routing of data to appropriate application user to which data has been forwarded (transferring to particular network interface based on network interface ID and address) (at least col. 17, lines 21-51).

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Caldarale fails to explicitly disclose each application server between images provided for virtual systems in said main storage, and thus the queues for the images. However, the use and advantages for using such a virtual imaging system is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Provino (at least col. 7, lines 36-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Provino's having virtual servers into Caldarale's system as this would enhance Caldarale's system to be able to have different queues for the same server due to the virtual designation and thus allowing more flexibility for Caldarale's system to have different queues in instances where more than one application is operating on a single server.

17. As per Claim 15.

- interface element further comprises of a connector interface element (channel/peripheral interfaces) (at least col. 6, lines 39-41)) and a network interface element (network interface) (features of Fig. 1 (10 26)).

18. As per Claim 17.

- main storage can be in processing communication with a plurality of network elements and servers (at least col. 6, lines 21-27, 9-12; Fig. 1).

19. As per Claim 19.

- network interface element further comprises an I/O device adapter (NIOP contains...Channel/Network I/O Microcode...Channel microcode utilizes CA...multiple adapters in NIOP, network channels) (at least col. 7, lines 13-19, 40-41), at least one

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more processor (network interface controller) (at least col. 7, lines 42-46) and a local storage area (NIOP message buffers made up of queue banks) (at least col. 7 line 63 - col. 8 line 2).

20. As per Claim 20.

- Network Interface Element is capable of connecting to one or more individual application users (feature of Fig. 1).

21. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caldarale in view of Provino (hereinafter "The combination") and further in view of Carbillet (hereinafter "Carbillet", 6,256,696).

The combination fails to disclose using his plurality of processors for specifically redundant capabilities. However, the use and advantages for using such a protocol is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Carbillet. Carbillet discloses using a plurality of processors for the purpose of redundancy in communication information processing systems (at least col. 1, lines 19-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Carbillet's processor redundancy into The combination's multiple processors so as to protect the system from failure in the case of one processor failing for any reason, the other processor would go on to complete the information processing, especially important for critical informations systems.

22. Claims 7 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination in view of Brandt et al (hereinafter "Brandt", 6,081,834).

Although the combination suggests using a specific network protocol (at least Caldarale col. 11, lines 53-55), Caldarale fails to explicitly disclose using a TCP/IP oriented web-server. However, the use and advantages for having such a protocol implemented on the network is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Brandt (at least col. 12, lines 1-7; col. 10, lines 51-55). Brandt teaches a network provider (web server) using a TCP/IP protocol. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a TCP/IP oriented web-server on the combination's network because this would enhance the expendability and compatibility of the combination's network since it would allow for the incorporation of new and future networking protocol implementations for existing network equipment and users.

23. Claims 3 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination in view of Casper et al (hereinafter "Casper", 6,192,482).

The combination fails to disclose the connector interface element is in processing communication with main storage via a Self-Timed Interface or an STI bus. However, the use and advantages for using such an interface is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Casper (at least abstract; col. 7, lines 30-36). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the use of a STI

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bus into the combination's system because the STI interface would offer more compatible interface connectivity solutions when different equipment vendors are involved, such as a heterogeneous system environment and is additionally operated at a faster clock speed.

24. Claims 9, 18, 21 & 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination in view of Leger et al (hereinafter "Leger", 5,765,023).

25. As per Claims 9 and 18.

Although Caldarale suggests using an ISA interface between the interface elements (at least col. 6, lines 32-35), Caldarale and the combination fail to disclose the connector interface element and network interface element being in processing communication with one another via a PCI bus. However, the use and advantages for using such an interface is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Leger (at least col. 3, lines 35-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Leger's use of a PCI bus as opposed to Caldarale's ISA bus because a PCI bus is a more widely-used interface and is additionally operated at a faster clock speed.

26. As per Claim 21.

The combination fails to disclose the connector interface element being in processing communication with main storage via a direct access memory I/O device. However, the use and advantages for using DMA between memory and an interface is

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well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Leger (at least Leger abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of using DMA between storage devices and I/O interfaces into the combination's system because this would enhance the speed and processing power of the other processors, by offloading this task to a DMA I/O device to move the data from one peripheral to the main memory for faster computations.

27. As per Claim 22.

The combination fails to disclose the connector interface element and network interface element being in processing communication with one another via a direct access memory I/O device. However, the use and advantages for using DMA between memory of different components (such as a peripheral and NIC) within a system is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Leger (at least Leger abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of using DMA between I/O interfaces into the combination's system because this would enhance the speed and processing power of the other processors, by offloading this task to a DMA I/O device to move the data to/from one peripheral from/to another component such as a NIC to be transferred over a network for faster network data transmission.

Response to Arguments

28. Applicant's arguments filed 24 March 2004 have been fully considered but they are not persuasive.

Applicants argue, substantially, that a) Caldarale fails to disclose a main storage unit as containing more than one image, said main storage communicating with more than one application server; b) contrary to the present invention, Caldarale and Provino are interrupt driven; c) there is no teaching or suggestion to combine Caldarale and Provino.

29. In response to a); In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Caldarale is not relied upon as having a main storage unit containing more than one image. Further, Caldarale specifically states Fig. 1 as only showing one server being connected to the main storage unit, and that other servers and thus queues are also connected to the main storage unit.

30. In response to b); Fig. 2 of Caldarale discloses the input and output queues communicating between the network I/O Code and communications program and does not disclose any interrupts nor any interruptions of running programs. The wording of the claims nearly suggests other programs not being interrupted and stalled from the queueing mechanism, and nothing about not using an interrupt-driven operating system, for example. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d

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1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, Provino is not relied upon for not causing interrupts in any running programs. Provino is clearly relied upon simply as disclosing each application server in a separate image provided for virtual system in the main storage.

31. In response to c); In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Provino is simply relied on as showing that a server can have multiple virtual servers running on one physical system, such virtual systems are well known in the art at the time the invention was made.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Newly cited Chong et al in addition to previously cited Baskey et al ('350 & 324), Downling et al, Barr et al, Mattaway et al, Jindal et al, Kailash, Bahls et al, Freund et al, Mukherjee et al, Brandt et al (6,021,430), Garcia, Bartek et al, Sharma et al, Chin et al, and Kawaguchi et al are cited for disclosing pertinent information related to the claimed

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invention. Applicants are requested to consider the prior art reference for relevant teachings when responding to this office action.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory G Todd whose telephone number is (703)305-5343. The examiner can normally be reached on Monday - Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (703)308-7562. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

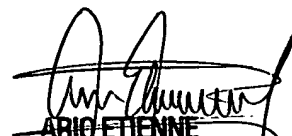
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Gregory Todd



Patent Examiner

Technology Center 2100



ARIO ETIENNE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100